**Criterion D – Scientific Inquiry**

Table below shows the descriptors and indicators for Criterion D – Scientific Inquiry

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| **Level** | **Descriptor** |  | **Indicator** |
| 0 | The student does not reach a standard described by any of the descriptors below. |  | The student does not reach a standard described by any of the indicators below. |
| 1 - 2 | The student **attempts to state** a focused problem or research question.  The method suggested **is incomplete**.  The student **attempts to evaluate** the method and respond to the focused problem or research question. |  | Attempts to state an aim but the aim is **incorrect** because it is not related to the task. |
|  | Has written **two** of the three science (independent, dependent or controlled) variables **correctly**. |
|  | Method has been written but is largely unreadable and not doable by someone else. |
|  | Method **does not** produce any useful data. |
|  | **Some** materials and apparatus have been identified. |
|  | Attempts to write an evaluation on the method so improvements can be made.  *e.g. I can improve on the method next time by..* |
| 3 - 4 | The student **states** a focused problem or research question and **makes a hypothesis** but **does not explain it** using scientific reasoning.  The student selects **appropriate** materials and equipment and writes a **mostly complete** method, mentioning **some of the variables** involved and how to manipulate them.  The student **partially evaluates** the method.  The student **comments** on the validity of the hypothesis based on the outcome of the investigation.  The student **suggests some** improvements to the method. |  | Has written an aim related to the task **and** written a hypothesis **simply**/ a **basic** hypothesis.  *Hypothesis – when x increases, y is expected to…* |
|  | Has correctly written at least two of science variables (dependent, independent or control) **and** **adequately** explain how the variables are changed.  *e.g. This is how the … variable is changed* |
|  | **Some** of the materials/apparatus are correctly listed or appropriate to the task. |
|  | Method is readable and doable/repeatable by someone else. |
|  | Method collects some useful data and allows a graph to be drawn. |
|  | **One** of the evaluations on the experiment is **correctly** written so weaknesses are identified and improvements can be made.  *e.g.*  *1) The …..(apparatus) could be faulty and I should … (suggest how to improve)*  *2) In my earlier experiment, I had trouble …. and I corrected that by …*  *3) To improve, I will …* |
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| 5 - 6 | The student states a **clear** focused problem or research question, **formulates a testable hypothesis** and **explains** the hypothesis using scientific reasoning.  The student selects appropriate materials and equipment and writes a **clear**, **logical** method, mentioning **all of the relevant variables** involved and how to control and manipulate them, and describing how the data will be collected and processed.  The student comments on the validity of the hypothesis based on the outcome of the investigation.  The student suggests **realistic** improvements to the method. |  | Has written an aim relating to the problem and written a hypothesis backed by scientific concepts or reasoning.  *E.g. when x increases, y is expected to…*  *This is because the worm is/would be…* |
|  | Has correctly written all three science variables (dependent, independent and control) and could **accurately** and **clearly** explain how the variables are changed. |
|  | **Most** of the materials/apparatus are correctly listed or appropriate to the problem. |
|  | Method is readable and doable/repeatable by someone else. |
|  | Method collects at least **four** useful data and allows for an effective graph to be drawn. |
|  | Method allows for conclusion to be written. |
|  | Hypothesis has been confirmed/debunked/proven false using the described trend, pattern or relationship  *e.g. This trend/pattern/relationship showed that my hypothesis is true/false* |
|  | **At least two** of the evaluations on the experiment are **correctly** written so weaknesses are identified and improvements can be made.  *e.g.*  *1) The …..(apparatus) could be faulty and I should … (suggest how to improve)*  *2) In my earlier experiment, I had trouble …. and I corrected that by …*  *3) To improve, I will …* |